Remarks:

Reconsideration of the application is respectfully requested.

Claims 1, 5 – 14 and 17 - 21 are presently pending in the application. Claims 2 – 4, 15 and 16 were previously canceled. As it is believed that the claims were patentable over the cited art in their previously presented form, the claims have not been amended to overcome the references.

On page 2 of the above-named Office Action, claims 1, 5 and 14 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over U. S. Patent No. 6,002,845 to Honma ("**HONMA**") in view of U. S. Patent No. 6,907,144 to Gindele ("**GINDELE**"). On page 5 of the Office Action, claims 6 - 11 and 17 - 20 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over **HONMA** in view of **GINDELE**, and further in view of U. S. Patent No. 6,717,601 to Sanger ("**SANGER**"). On page 7 of the Office Action, claims 12, 13 and 21 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over **HONMA** in view of **GINDELE**, and further in view of U. S. Patent No. 7,079,289 to Loce et al ("**LOCE**").

Applicants respectfully traverse the above rejections.

More particularly, the combination of **GINDELE** and **HONMA** cited on page 2 of the Office Action does not teach or suggest

Applicants' particularly claimed methods for grey value correction. In particular, one result of Applicants' claimed invention is that the claimed grey value correction method of the instant invention is **suitable for exposure linearization of recording devices.** This is pointed out on page 5 of the instant application, line 24- page 6, line 4, which states:

> It is accordingly an object of the invention to provide a grey value correction method for binary image data that overcomes the hereinafore-mentioned disadvantages of the heretofore-known devices and methods of this general type **and that is suitable for the exposure linearization of recording devices** and generally for correcting the graduation of binary image data and that avoids the disadvantages of the known methods. [emphasis added by Applicants]

The **HONMA** reference describes an image processing apparatus for storing image information of a plurality of pages, for example, a digital copier apparatus. See, for example, col. 1 of **HONMA**, lines 9 – 11 and 13 – 17. Resultantly, the method disclosed in **HONMA** uses a smoothing unit (305 of Fig. 3 of **HONMA**) that smoothes the image read by a CCD sensor (109 of Fig. 2 of **HONMA**) of an image reading unit (201 of Fig. 2 of **HONMA**), together with image data read from an image storage unit (304 of Fig. 3 of **HONMA**). See, for example, col. 4 of **HONMA**, lines 16 – 29 and col. 5 of **HONMA**, lines 43 - 47.

In order to reduce the amount of image data sent to the memory for storage, **HONMA** discloses converting the multi-value density data to **binary** data (i.e., into a one-bit image data "0" or "1" representing a density value of either "0" or "255"). See, for example, col. 4 of **HONMA**, lines 55 – 59, which state:

> The density data is then sent to a binarization unit 302 **which binarizes multi-value density data to obtain a density value of "0" or "255".** The binarized 8-bit image data is converted **into one-bit image data "0" or "1" to reduce the amount of image data to be stored in a memory.** [emphasis added by Applicants]

The binarization of **HONMA** is performed in the binarization unit 302 of Fig. 3 of **HONMA.** Because the image data read from the CCD 109 is smoothed, the stored image data of **HONMA** must be smoothed in the same way. Thus, in **HONMA**, both the stored image data and the read image data are sent to the smoothing unit 305 for conversion to one of the two binary density values "0" or "255". See, for example, col. 5 of **HONMA**, lines 43 – 47, which state:

> The image data read from the image storage unit 304 **and** the image data not stored in the image storage unit **are sent to a smoothing unit 305 which first converts one-bit data into 8-bit data and then change the image data to a density value "0" or "255".** [emphasis added by Applicants]

In order to recover the halftone information, **HONMA** discloses making a "pseudo-halftone representation" in reverse, using

binary data, as disclosed in col. 4 of **HONMA**, lines 60 – 67. Such a method is disclosed in col. 5 of **HONMA**, lines 43 – 57. **HONMA** then discloses smoothing the halftoned image. However, this smoothing of **HONMA** has **nothing** to do with **a grey value correction of binary image data**, as claimed by Applicants.

More particularly, as discussed above, **HONMA** discloses a method for creating halftone image data out of pseudo-halftone image data represented by **1-bit image data.** However, changing the number "1" into a density value of "255" number, as done in **HONMA**, is **not** the same as, or analogous to, quantizing with n>1, as required by Applicants' claims. See, for example, Applicants' claim 1, which recites, among other limitatations"

> quantizing the binary image data with n bits, wherein n > 1;

Thus, in contrast to the allegations made on page 2 of the Office Action, the **HONMA** reference does **not** teach or suggest, quantizing the binary image data with n bits, wherein n > 1, as required by Applicants' claims.

Additionally, the Office Action asserted a combination of the **HONMA** reference and the **GINDELE** reference against Applicants' independent claims. Applicants respectfully traverse this rejection.

In **contrast** to the teachings of **HONMA**, the **GINDELE** reference discloses a method for removing noise using a Sigma filter that compares the values of the pixels in a sample region with a pixel of interest, wherein only pixels above a threshold value are taken into account when calculating the value of the pixel of interest. However, the **HONMA** reference discloses changing "nearby" pixels by adding them to weighted coefficients of a matrix. See, for example, col. 5 of **HONMA**, lines 9 - 14.

Thus, according to the teachings of **GINDELE** (i.e., only pixels above a threshold) the changes in **HONMA** that represent the binary values in a "pseudo-halftone" manner would be interpreted as noise and would, therefore, be cut off. The information of the halftone values of **HONMA** would be **discarded** in accordance with the teachings of **GINDELE**, thus rendering the device of **HONMA** inoperative. M.P.E.P. § 2143.01(V) states, in part:

> V. THE **PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE**
>
> If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

Thus, M.P.E.P. § 2143.01(V) states that if a proposed modification would render the prior art invention being

modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. As discussed hereinabove, taking the teachings of the **HONMA** reference in combination with the teachings of the **GINDELE** reference would impermissibly render the device of the **HONMA** reference inoperative, and thus, unsatisfactory for its intended purpose. Thus, under M.P.E.P. § 2143.01(V), Applicant's claims are **not** obvious over the **HONMA** reference taken in combination with the **GINDELE** reference. In fact, the combination of the teachings of **HONMA** and **GINDELE** produces a device that does not operate in accordance with the principles of the **HONMA** reference. Thus, the **HONMA** reference is not combinable with the **GINDELE** reference in the manner set forth in the Office Action.

Further, the **GINDELE** reference discloses a method of **noise reduction**, in contrast to Applicants' claimed method of grey value correction. In particular, the **GINDELE** reference discloses **a distribution of pixel regions** and **not a distribution of filter coefficients**. See, for example, col. 6 of **GINDELE**, lines 3 – 4.

Further, in **GINDELE**, the filter weighting coefficients all only consist of either a "1" or a "0". See, for example, col. 6 of **GINDELE**, lines 44 – 47 ("Each pixel in the sparsely

sampled local region is given a weighting factor of one or zero based on the absolute difference between the value of the pixel of interest and the sampled pixel value"). Therefore, in **GINDELE**, no filter coefficients are changed in any way. Rather, as can be seen from Fig. 10 of **GINDELE**, read together with the description in col. 8 of **GINDELE**, line 63 – col. 9, line 2, in **GINDELE**, the whole pixel regions are moved by **one whole pixel** relative to the pixel regions in Fig. 8 of **GINDELE**. Therefore there is not a **shifting of a fraction being less than 1**, as required by Applicants' claims, but rather is a shift of **exactly 1** pixel. Thus, among other limitations of Applicants' claims, **GINDELE** does **not** teach or suggest obtaining the asymmetrical distribution of the filter coefficients from a symmetrical filter **by shifting a filter function by fractions of an image point, said fractions being less than 1**, and obtaining further coefficients for the asymmetrical distribution **by using the same filter function** as used for obtaining symmetrical distributions, as required by Applicants' claims. As acknowledged on page 3 of the Office Action, **HONMA** also fails to teach or suggest the above limitation of Applicants' claims.

Also, among other things, **GINDELE** does **not** teach or suggest obtaining an asymmetrical distribution of filter coefficients, as required by Applicants' claims. Rather, **GINDELE** discloses

an asymmetrical distribution of pixel regions in a sparsely sampled local region. See, for example, Fig. 10 of **GINDELE** and col. 8 of **GINDELE**, lines 65 - 67.

As pointed out above, Applicants' claimed invention requires a distribution of **filter coefficients** as points in a matrix, with an asymmetrical distribution of the filter coefficients formed **by shifting the filter function by fractions of an image point less than 1**. Therefore, as disclosed on pages 11 - 12 of the instant application, all matrix elements remain set, but the values differ in an asymmetrical way with regard to a filter function by using the filter function itself and filling in values which deviate **by a fraction of 1** from the original distribution. Therefore, in Applicants' claimed invention, the values of the filter coefficients, themselves, are changed. See, for example, page 12 of the instant application. However, **GINDELE** only discloses a sparsely sampled region with pixels, wherein the pixels in the pixel regions themselves are shifted **by an amount of 1** (i.e., and not by fractions of 1, as required by Applicants' claims).

Thus, in contrast to the allegation made on page 3 of the Office Action, the **GINDELE** reference does **not** teach or suggest obtaining an asymmetrical distribution of filter coefficients from a symmetrical filter by shifting the filter function by

fractions of an image point less than 1, as required by Applicants' claims.

In summary, the **GINDELE** and **HONMA** references are not combinable to teach, suggest or motivate a person of ordinary skill in the art to derive Applicants' particularly claimed invention. First, the **HONMA** and **GINDELE** references cannot be combined without **destroying** the operability of the **HONMA** reference. Further, as discussed above, neither **HONMA**, nor **GINDELE** teaches or suggests, among other limitations of Applicants' claims, obtaining the asymmetrical distribution of the filter coefficients from a symmetrical filter by shifting a filter function **by fractions of an image point**, **said fractions being less than 1**, especially where further coefficients for the asymmetrical distribution are obtained. In contrast to Applicants' claimed invention, **GINDELE** only shows shifting **whole pixels** in a sparsely sampled local region.

For the foregoing reasons, among others, Applicants' claims are believed to be patentable over the **HONMA** and **GINDELE** references. The **SANGER** and **LOCE** references, cited in the Office Action in combination with **HONMA** and **GINDELE** against certain of Applicants' dependent claims, do not cure the

above-discussed deficiencies of the **HONMA** and **GINDELE** references.

It is accordingly believed that none of the references, whether taken alone or in any combination, teach or suggest the features of claims 1, 5 and 14. Claims 1, 5 and 14 are, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claims 1 or 14.

In view of the foregoing, reconsideration and allowance of claims 1, 5 - 14 and 17 - 21 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out.

If an extension of time for this paper is required, petition for extension is herewith made.

Please charge any fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner Greenberg Stemer LLP, No. 12-1099.

Respectfully submitted,

/Kerry Pauline Sisselman/
Kerry Pauline Sisselman
Reg. No. 37,237

For Applicants

December 17, 2009

Lerner Greenberg Stemer LLP
Post Office Box 2480
Hollywood, FL 33022-2480
Tel: (954) 925-1100
Fax: (954) 925-1101